

# Development and Implementation of Dynamic Scripts to Execute Cycled WRF/GSI Forecasts

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Automating the coupling of data assimilation (DA) and modeling systems is a unique challenge in the numerical weather prediction (NWP) research community. In recent years, the Development Testbed Center (DTC) has released well-documented tools such as the Weather Research and Forecasting (WRF) model and the Gridpoint Statistical Interpolation (GSI) DA system that can be easily downloaded, installed, and run by researchers on their local systems. However, developing a coupled system in which the various preprocessing, DA, model, and postprocessing capabilities are all integrated can be labor-intensive if one has little experience with any of these individual systems. Additionally, operational modeling entities generally have specific coupling methodologies that can take time to understand and develop code to implement properly. To better enable collaborating researchers to perform modeling and DA experiments with GSI, the Short-term Prediction Research and Transition (SPoRT) Center has developed a set of Perl scripts that couple GSI and WRF in a cycling methodology consistent with the use of real-time, regional observation data from the National Centers for Environmental Prediction (NCEP)/Environmental Modeling Center (EMC). Because Perl is open source, the code can be easily downloaded and executed regardless of the user's native shell environment. This paper will provide a description of this open-source code and descriptions of a number of the use cases that have been performed by SPoRT collaborators using the scripts on different computing systems.

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